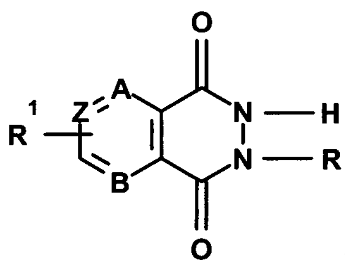
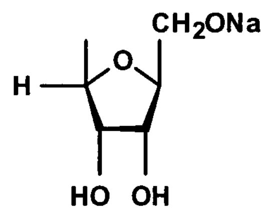
Claims

1. A cyclic bioisostere of derivatives of a purine system having a general structural formula

 where R = Li, Na, K,  ,

R^1 = -H, $-NH_2$, -Br, -Cl, -OH, -COOH,

B = -N=, -CH=, Z = -CH=, -N=,

A = -N= at B = -N=, Z = -CH-,

A = -CH= at B = -N=, Z = -CH-,

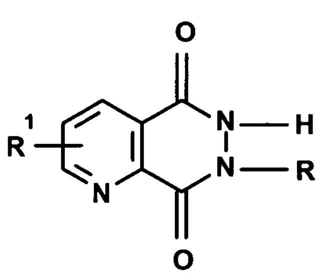
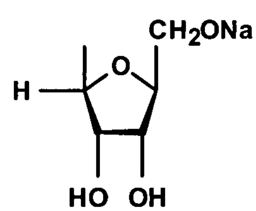
A = -CH= at B = -N=, Z = -N=,

A = -CH= at B = -CH=, Z = -CH=,

A = -CH= at B = -CH=, Z = -N= ,

and its pharmacologically acceptable salts rendering a normalizing effect on endocellular processes.

2. The compound as claimed in claim 1, characterized in that it is a derivative of pyrido [2,3-d]-6H-pyridazine-5,8-dione having a general formula

 where R is the atom of Li, Na, K,  ,

R^1= -H, $-NH_2$, -Br, -OH, -COOH.

3. The compound as claimed in claim 1 or 2, characterized in that it is selected from the group including:

sodium salt (1) of 7-(β-B-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione,

sodium salt of 4-amino-7-(β-B-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione (2),

sodium salt of 3-bromine-7-(β-D-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione (3),

disodium salt of 4-hydroxy-7-(β-D-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione (4),

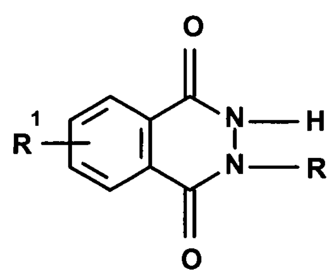
disodium salt of 3-carboxy-7-(β-D-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione (5),

lithium salt of pyrido[2,3-d]-6H-pyridazine-5,8-dione (6),

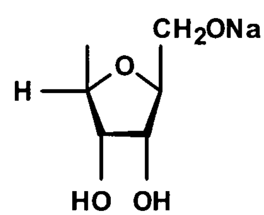
sodium salt of pyrido[2,3-d]-6H-pyridazine-5,8-dione (7),

potassium salt of pyrido[2,3-d]-6H-pyridazine-5,8-dione (8).

4. The compound as claimed in claim 1, characterized in that it is a derivative of benzo[d]-3H-pyridazine-1,4-dione, having a general formula



where R is the atom of Li, Na, K,



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R^1 = -H, -NH_2, -Cl, OH, -COOH.

5. The compound as claimed in claim 1 or 4, characterized in that it is selected from the group including:

sodium salt of 2-(β-D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione (9),

sodium salt of 5-amino-2-(β-D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione (10),

sodium salt of 6-amino-2-(β-D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione (11),

sodium salt of 5-chlorine-2-(β-D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione (12),

disodium salt of 5-hydroxy-2-(β-D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione (13),

lithium salt of 5-amino-benzo[d]-3H-pyridazine-1,4-dione (14),

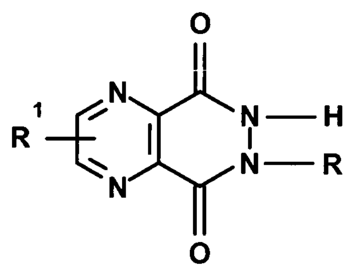
sodium salt of 5-amino-benzo[d]-3H-pyridazine-1,4-dione (15),

potassium salt of 6-amino-benzo[d]-3H-pyridazine-1,4-dione (16),

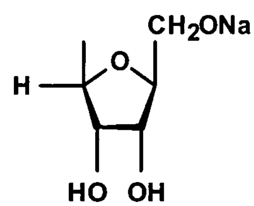
disodium salt of 5-hydroxy-benzo[d]-3H-pyridazine-1,4-dione (17),

disodium salt of 6-carboxy-benzo[d]-3H-pyridazine-1,4-dione (18).

6. The compound as claimed in claim 1, characterized in that it is a derivative of pyrazine[2,3-d]-6H-pyridazine-5,8-dione, having a general formula



Where R is the atom of Li, Na, K,



,

R^1 = -H, $-NH_2$, -Br, -OH, -COOH.

7. The compound as claimed in claim 1 or 6, characterized in that it is selected from the group including:

sodium salt of 7-(β-D-ribofuranosile)pyrazine[2,3-d]-6H-pyridazine-5,8-dione (19),

sodium salt of 2-amino-7-(β-D-ribofuranosile)pyrazine[2,3-d]-6H-pyridazine-5,8-dione (20),

sodium salt of 3-amino-7-(β-D-ribofuranosile)pyrazine[2,3-d]-6H-pyridazine-5,8-dione (21),

sodium salt of 3-bromine-7-(β-D-ribofuranosile)pyrazine[2,3-d]-6H-pyridazine-5,8-dione (22),

disodium salt of 2-hydroxy-7-(β-D-ribofuranosile)pyrazine[2,3-d]-6H-pyridazine-5,8-dione (23),

disodium salt of 2-carboxy-7-(β-D-ribofuranosile)pyrazine[2,3-d]-6H-pyridazine-5,8-dione (24),

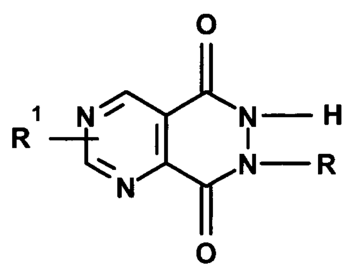
lithium salt of pyrazine[2,3-d]-6H-pyridazine-5,8-dione (25),

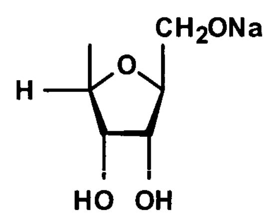
sodium salt of pyrazine[2,3-d]-6H-pyridazine-5,8-dione (26),

potassium salt of 3-bromine-pyrazine[2,3-d]-6H- pyridazine-5,8-dione (27),

sodium salt of 2-amino-pyrazine[2,3-d]-6H-pyridazine-5,8-dione (28).

8. The compound as claimed in claim 1, characterized in that it is a derivative of pyrimido[4,5-d]-6H-pyrodazine-5,8-dione having a general formula



where R is the atom of Li, Na, K,  ,

R^1 = -H, $-NH_2$, -Br, -OH, -COOH .

9. The compound as claimed in claim 1 or 8, characterized in that it is selected from the group including:

sodium salt of 7-(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione (29),

sodium salt of 2-amino-7-(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione,

sodium salt of 4-amino-7(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione (31),

sodium salt of 2-bromine-7-(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione (32),

sodium salt of 4-hydroxy-7-(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione (33),

sodium salt of 4-carboxy-7-(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione (34),

lithium salt of pyrimido[4,5-d]-6H-pyridazine-5,8-dione (35),

sodium salt of 2-amino-pyrimido[4,5-d]-6H-pyridazine-5,8-dione (36),

potassium salt of 4-bromine-pyrimido[4,5-d]-6H-pyridazine-5,8-dione (37).

10. The compound as claimed in any of claims 1 to 9, characterized in that it is capable of eliminating the endocellular metabolic acidosis.

11. The compound as claimed in any of claims 1 to 9, characterized in that it is capable of binding the free radicals excessively formed in a cell

12. The compound as claimed in any of claims 1 to 9, and 11, characterized in that it is capable of binding the free-radical forms of oxygen excessively formed in a cell

13. The compound as claimed in any of claims 1 to 9, and 11, characterized in that it is capable of normalizing the nitrergic mechanisms of cells.

14. The compound as claimed in any of claims 1 to 9, characterized in that it is capable of interacting with adenosine-sensitive receptors.

15. The compound as claimed in any of claims 1 to 9, characterized in that it is capable of interacting with adenosine-sensitive receptors on a membrane of non-nuclear cells.

16. The compound as claimed in any of claims 1 to 9, and 15, characterized in that it is capable of decreasing the aggregation of thrombocytes.

17. The compound as claimed in any of claims 1 to 9, characterized in that it is capable of of interaction with adenosine-sensitive receptors inside the nuclei-containing cells.

18. The compound as claimed in any of claims 1 to 13, characterized in that it has hepatoprotective effect.

19. A pharmaceutical composition containing a biologically active ingredient and a pharmaceutically accepable carrier, characterized in that the biologically active ingredient is a compound according to any claim from 1 to 18 taken in an effective amount.

20. The composition as claimed in claim 19, characterized in that the active ingredient is a salt of the compound according to any of claims 1 to 9.

21. The composition as claimed in claim 19 or 20, characterized in that the active ingredient is selected from the group including salts of alkaline and alkaline-earth metals.

22. The composition as claimed in claim 20, characterized in that the active ingredient is selected from the group including hydrochlorides, hydrobromides, sulfates, phosphates, citrates, tartrates, fumarates, oxalates, maleates, acetates, nitrates.

23. The composition as claimed in any of claims 19 to 21, characterized in that the active ingredient is a compound of salts selected from the group including salt of alkaline and alkaline-earth metals in any quantitative ratio.

24. The composition as claimed in any of claims 19 to 20 and claim 22, characterized in that the active ingredient a compound of salts selected from the group, including hydrochlorides, hydrobromides, sulfates, phosphates, citrates, tartrates, fumarates, oxalates, maleates, acetates, nitrates in any their quantitative ratio.

25. The composition as claimed in any of claims 19 to 24, characterized in that the biologically active ingredient is in a liposomal form.

26. The composition as claimed in any of claims 19 to 25, characterized in that the pharmacologically accepable carrier is a composition containing pharmacologically active additives.

27. A composition as claimed in claim 26, characterized in that the pharmacologically active compounds are selected from the group including stabilizers, dispersers, aromatizers emulsifiers, conductors, bioavailability rising means.

28. The composition as claimed in any of claims 19 to 27, characterized in that it is an active ingredient in a pharmaceutically accepable liquid carrier or a solvent.

29. A composition as claimed in claim 28, characterized in that the liquid carrier is selected from the group including water, physiological liquid, buffer solutions.

30. The composition as claimed in any of claims 19 to 27, characterized in that it is a fine powder of an active ingredient optionally in a pharmaceutically accepable liquid carrier or solvent.

31. The composition as claimed in any of claims 19 to 30, characterized in that it is adapted to administration by a method selected from the group including oral, parenteral aerosol, rectal, vaginal, epicutaneous, through-skin, intranasal introduction, and administration by application.

32. The composition as claimed in any of claims 19 to 31, characterized in that it is adapted to local administration.

33. The composition as claimed in any of claims 19 to 32, characterized in that it is adapted to delivery to the place of administration by menas of a device.

34. The composition as claimed in any of claims 19 to 33, characterized in that it is adapted to administration by an active method.

35. The composition as claimed in any of claims 19 to 33, characterized in that it is adapted to administration by a passive method.

36. The composition as claimed in any of claims 19 to 33, characterized in that it is a spontaneously dispersed concentrate.

37. The composition as claimed in any of claims 19 to 33, characterized in that it is made in a medicinal form providing a controllable release of active the ingredients of the composition.

38. The composition as claimed in any of claims 19 to 37, characterized in that it is additionally contains one or several agents changing the rate of release of the active ingredient.

39. The composition as claimed in any of claims 19 to 38, characterized in that it is adapted to administration in a dosed amount.

40. The composition as claimed in any of claims 19 to 39, characterized in that it is adapted to application in a solid, semi-solid liquid, suspension anf aerosolic form.

41. The composition as claimed in any of claims 19 to 40, characterized in that it is adapted to arrangement in pharmaceutically accepable application agents.

42. The composition as claimed in any of claims 2 to 31, characterized in that it is adapted to administration in a medicinal form selected from the group, including tablets, granules,

globules, powders, capsules, ampoules, dry preparations, which before the application are shaped as a solution or emulsion, a suppository, tampons, ointments, gels, sols, solutions for injection, suspensions, emulsions, drops, syrups, plasters, applications, films, aerosols, sprays.